

A NEW SPECIES OF THE GENUS BITTACUS (MECOPTERA, BITTACIDAE) FROM ZHEJIANG, CHINA

TAN Jiang-Li, HUA Bao-Zhen

Key Laboratory of Plant Protection Resources and Pest Management, Ministry of Education; Entomological Museum, Northwest A & F University, Yangling, Shaanxi 712100, China

Abstract A hangingfly, *Bittacus zhejiangicus* Tan et Hua, is described as new to science from Zhejiang, China. Wing pattern, male and female genitalia are illustrated. The type specimens are deposited in the Entomological Museum, Northwest A & F University [NWAU] and the Shanghai Entomological Museum [SHEM] separately.

Key words Mecoptera, Bittacidae, *Bittacus*, new species, Zhejiang, China.

The hangingfly family Bittacidae comprises 17 extant genera and about 180 species (Penny, 1997). The largest and the cosmopolitan genus *Bittacus* Latreille, 1805 is the only representative at the generic level known to occur in China hitherto (Cheng, 1957). Twenty-one species of *Bittacus* have been reported from mainland China (Penny & Byers, 1979; Penny, 1997; Hua, 1998; Huang & Hua, 2005; Cai et al., 2006; Hua & Tan, 2007), among which two species, *B. sinensis* Walker, 1853 and *B. tienmushana* Cheng, 1957, are distributed in Zhejiang Province, east China (Cheng, 1957). During the recent Entomological Expeditions in Zhejiang in 2005 and 2007, a male and a female hangingfly of *Bittacus* were collected and identified to be a new species to science. Subsequently, the third male specimen was found during our recent visit to Shanghai Entomological Museum, and described herein.

Bittacus zhejiangensis sp. nov. (Figs. 1-11)

Holotype, Qixingtian (27°52'N, 119°11'E; alt. 1400 m), Mt. Fengyang, Zhejiang, 31 July 2007, coll. FU Qiang, the left fore leg was broken off from tibia, preserved in the Entomological Museum, Northwest A & F University [NWAU]. **Paratypes**: 1, Wuyanling (119°41'E, 27°39'N), Taishun, Zhejiang, 30 July 2005, coll. HOU Xiao-Yan and TIAN Jing [NWAU]; 1, Mt. Baishanzu, 1050 m, Qingyuan, Zhejiang, 22 July 1963, coll. JIN Gen-Tao, deposited in the Shanghai Entomological Museum [SHEM] (formerly Institute of Entomology, Academia Sinica, Shanghai, China, IEAS).

Diagnosis. The new species resembles *B. tienmushana* Cheng, but can be separated from the latter by the plumose antennae, wings with Av and four large darkish brown spots; fore femora markedly blackish brown; epandrial appendage of male with a large ventral

process at basal part; proctiger with a small apical process bearing a bundle of rather long setae; gonostylus lacking any process. It differs from *B. sinensis* Walker by epandrial appendages bearing a large ventral process basally.

Etymology. The new species is named for its type locality, Zhejiang, China.

Measurements. Male. Body length 18 mm; forewings 23.5 mm long, 5.8 mm wide; hindwings 20.8 mm long, 4.9 mm wide. Female. Body length 17.5 mm; wingspan 51 mm.

Head. Vertex, occiput and frons amber-brown; rostrum fuscous and maxillary palps blackish brown; eyes black; ocellar triangle black. Antennae 7 mm long, plumose and brown, with 16 slender, long-haired flagellomeres.

Thorax. Pronotum unevenly dark brown, lacking distinct setae along anterior margin; meso- and metanotum blackish brown laterally, with a prominent pale brown median stripe about as wide as scutellum. Pleura and coxae unevenly darkish to pale brown. Fore femora blackish brown. Mid and hind legs yellowish brown, with distal ends of femora and tibiae black (Fig. 1). A few short black setae present on femora, tibiae and tarsi.

Wings (Fig. 1). Wings membrane hyaline with a faint yellowish tinge; pterostigma elongate, a little darker with two pterostigmal crossvein (Pcv); two pale brown nygmata each present on cells R_{4+5} and $1R_5$; a whitish thyridium present at first fork of media (FM) and at the base of M_4 . Four distinct tawny brown shaded areas at origin of radial sector (ORs), first fork of radial sector (FRs), origin of media from cubitus (OM), and the end of cubitus posterior (CuP); along all crossveins diffused with brownish or dark brown clouding except humeral crossvein (h). Four crossveins, viz. the first

This study was supported the National Natural Science Foundation of China (30370179) and the Compilation of the Fauna of China (2006FY120100). The Entomological Resource Expedition to Wuyanling in 2005 and Fengyangshan-Baishanzu in 2007 were organized by Zhejiang Forestry University.

* Corresponding author, E-mail: huabzh@nwsuaf.edu.cn

Received 14 Apr. 2008, accepted 6 May 2008.

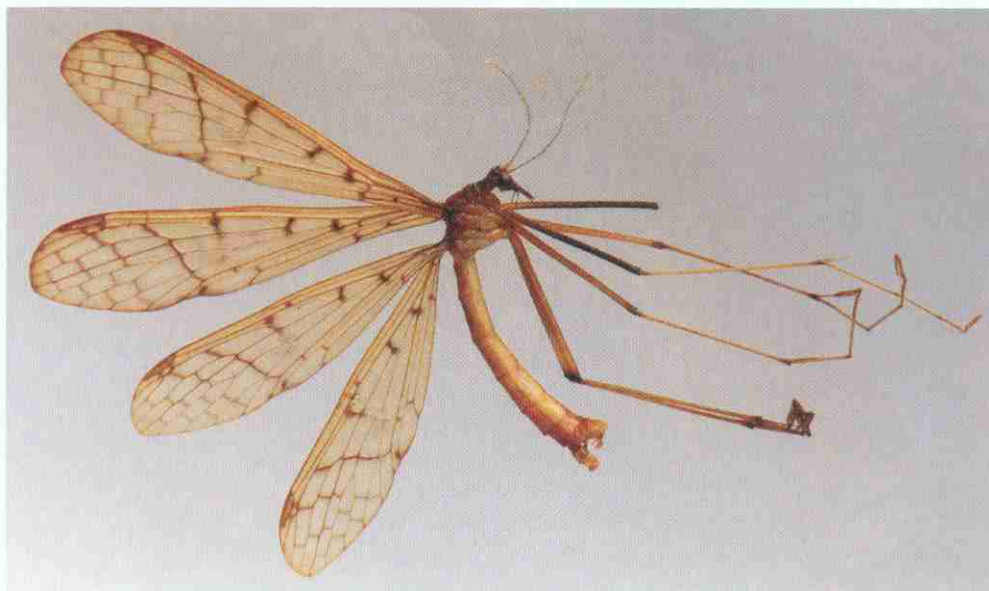


Fig. 1. *Bittacus zhejiangicus* sp. nov., male holotype.

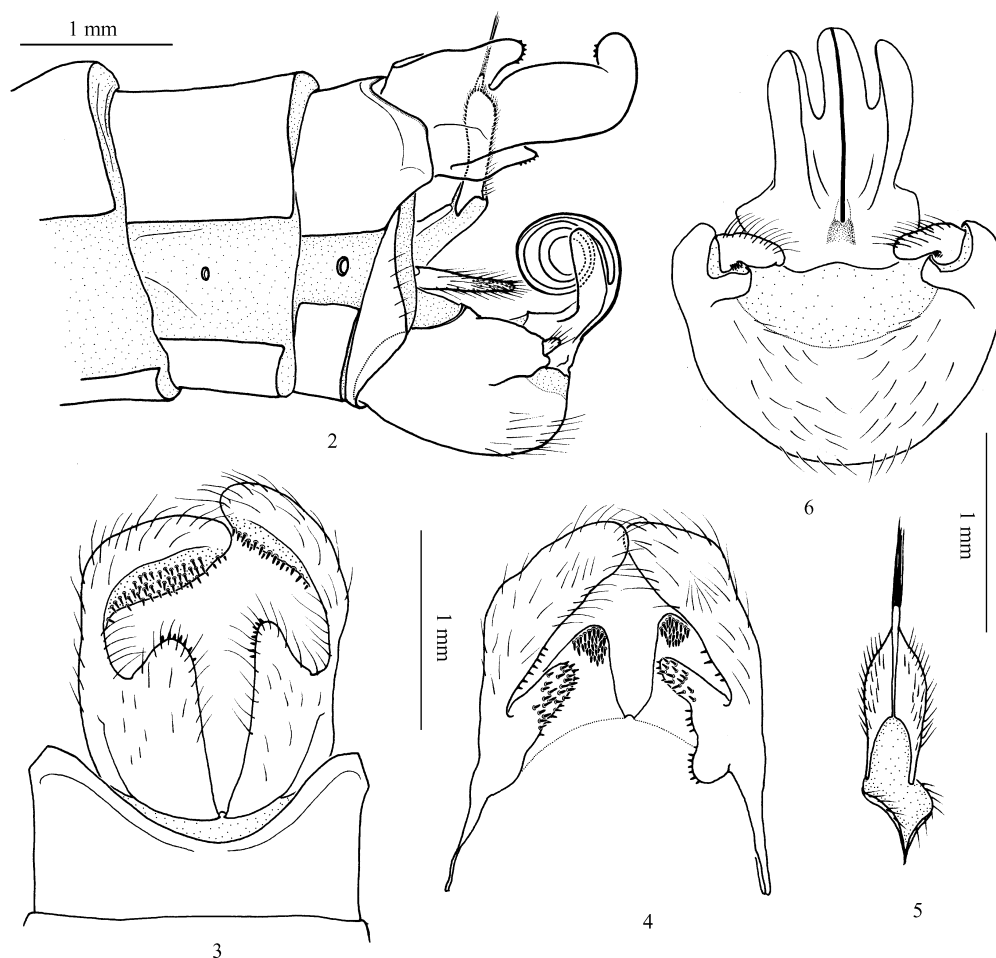
radial (1r), first radiomedial (1r-m), medial (m), and medio-cubital crossvein (m-cu), and the base of R_4 arranged in a line from mid of R_{2+3} extending almost to the end of cubitus anterior (CuA). Subcostal crossvein (Scv) slightly beyond the level of FRs; 1A terminating at anal margin a little before the level of FM; cubital crossvein (Cuv, cross-vein between CuA and CuP) a little beyond FM; one anal crossvein (Av, the apical cross-vein between CuP and 1A) present before FM. 2A terminating little before OM with two crossveins between 1A and 2A. Hindwings similar to forewings, Scv well before the level of FRs.

Abdomen of male (Figs. 2-6). Terga yellowish brown, darkened at posterior margins. Tergum 8 deeply concaved posteriorly. Epandrial appendages (tergum 9) highly modified, deeply cleft into a short dorsal branch and a long ventral branch at basal 1/3 in lateral aspect (Fig. 2); all the branches covered with a patch of dense short black spines on the inner surface of their apices; in dorsal aspect, the ventral branches curved dorso-mesad and slightly crossed distally; in ventral aspect, the epandrial appendage with a large ear-like process bearing numerous black spines on its ventral margin (Figs. 3-4). The upper branch of proctiger short, with a prominent long apical process bearing a bundle of yellow setae distally; these setae considerably long and partly protruding from between the bases of epandrial appendages. Both sides of upper branch strongly sclerotized, shining dark greenish with a row of yellow marginal setae; middle part paler, weakly sclerotized. Lower branch considerably short, broad basally and

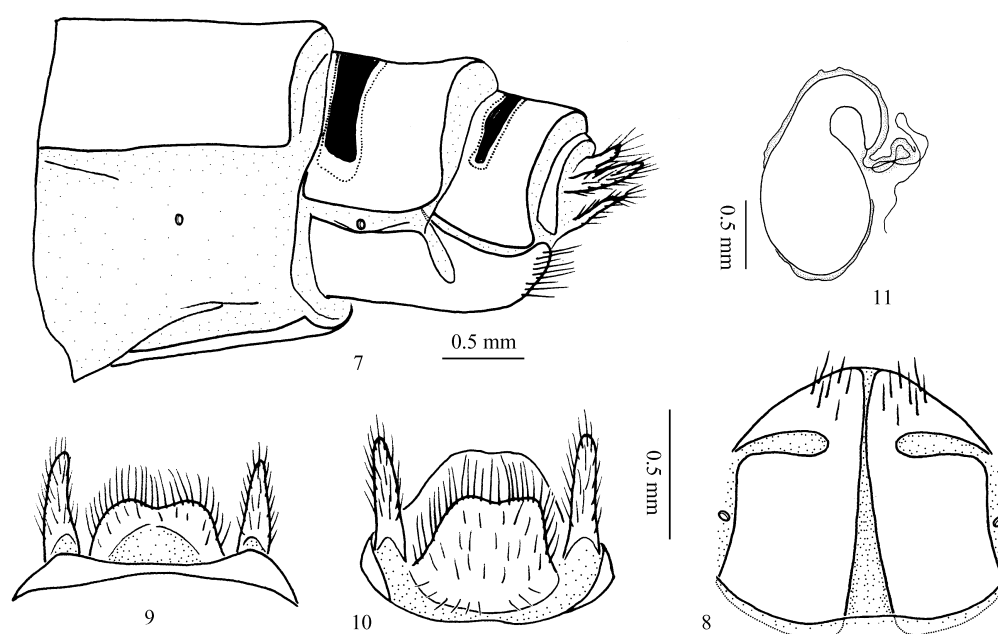
tapering toward apex (Figs. 2, 5). Cerci moderately long, tapering toward apex (Fig. 2). Gonocoxite shorter than epandrial appendage; middle part of its posterior margin rounded (Fig. 2); gonostylus short, lacking any process and bearing numerous brown hairs (Fig. 6). Each aedeagal lobe large with apex rounded and strongly sclerotized laterally, making the lateral sides darker than middle; penisfilum very long and coiled like watch spring (Figs. 2, 6).

Abdomen of female (Figs. 7-11). Coloration similar to male. Terga 3-6 each with a narrow black antecosta; tergum 7 moderate length, with its antecosta invisible; tergum 8 short with the broadest black antecosta, tergum 9 with antecosta slightly narrower and shorter. Subgenital plate roughly shoe-like in lateral view, with a deep narrow membranous concave from dorsal margin at middle part, the two halves separated by a narrow membranous suture to apex; a few black stiff hairs present at apical area. Tergum 10 pale brown, narrow, and extending little ventrad. Supraanale and subanale yellowish brown with slightly concaved posterior margin. Cerci a little longer than supra- and subanale. Spermatheca bean-like, about 1.4 mm long and 0.7 mm in diameter, with an elongate, curved neck (Fig. 11).

Acknowledgements We thank the collectors FU Qiang, HOU Xiao-Yan, and TIAN Jing, all of them are graduate students of the junior author. We are also indebted to ZHANG Wei-Nian and Mr. YIN Hai-Sheng of Shanghai Entomological Museum for their kindly arranging the observation of specimens.



Figs. 2-6. Male of *B. zhejiangicus* sp. nov. 2. Terminalia, lateral view. 3. Epandrial appendages (tergum 9), dorsal view. 4. Ibid, ventral view. 5. Proctiger, caudal view. 6. Genitalia, caudal view.



Figs. 7-11. Female of *Bittacus zhejiangicus* sp. nov. 7. End of abdomen, lateral view. 8. Subgenital plate, ventral view. 9. Terga 10 and 11, dorsal view. 10. Ibid, ventral view. 11. Spermatheca.

REFERENCES

- Cai, L-J, Huang, P-Y and Hua, B-Z 2006. Two new Chinese Bittacus Latreille (Mecoptera: Bittacidae) from Michangshan Mountains. *Entomotaxonomia*, 28 (2): 127-130.
- Cheng, F-Y 1957. Revision of the Chinese Mecoptera. *Bulletin of the Museum of Comparative Zoology*, 116 (1): 1-118.
- Hua, B-Z and Chou, I 1998. The Bittacidae of Funiu Mountain in Henan (Mecoptera). In: Shen, X-C and Shi, Z-Y (eds.), *Insects of the Funiu Mountains Region*. (1): 64-67.
- Hua, B-Z and Tan, J-L 2007. A new species of Bittacus Latreille (Mecoptera, Bittacidae) from Daba Mountain in China. *Acta Zootaxonomica Sinica*, 32 (2): 455-458. [动物分类学报]
- Huang, P-Y and Hua, B-Z 2005. Four new species of the Chinese Bittacus Latreille (Mecoptera, Bittacidae). *Acta Zootaxonomica Sinica*, 30 (2): 393-398. [动物分类学报]
- Penny, N. D. and Byers, G. W. 1979. A check-list of the Mecoptera of the world. *Acta Amazonica*, 9 (2): 365-388.

浙江蚊蝎蛉属一新种 (长翅目, 蚊蝎蛉科)

谭江丽 花保祯

教育部植保资源与病虫害治理重点开放实验室, 西北农林科技大学昆虫博物馆 陕西杨凌 712100

摘要 记述了产于中国浙江的蚊蝎蛉属 *Bittacus* Latreille, 1805 1 新种, 浙江蚊蝎蛉 *Bittacus zhejiangicus* sp. nov., 提供了雄性正模成虫的整体照片, 绘制了雄性和雌性外生殖器特征图。新种与中华蚊蝎蛉 *Bittacus sinensis* Walker 和天目山蚊蝎蛉 *B. tienmushana* Cheng 相似, 但根据羽状触角, 翅 *Av* 脉存在, 前足腿节明显黑褐色, 雄性上生殖瓣基部下缘大的耳状突

起, 载肛突末端有 1 小突起, 突起上有 1 束长毛, 生殖肢端节不具突起等特征容易区分。正模, 采于浙江凤阳山七星潭; 副模: 1, 采于浙江泰顺乌岩岭; 1, 采于浙江庆元百山祖。模式标本分存于西北农林科技大学昆虫博物馆 [NWAU] 和上海昆虫博物馆 [SHEM]。

关键词 长翅目, 蚊蝎蛉科, 蚊蝎蛉属, 新种, 浙江, 中国.

中图分类号 Q969.392.3